



Model of the psychosocial impact of organizations on the occupational health of workers

*Modelo de impacto de tipo psicosocial de las
organizaciones en la salud ocupacional de los
trabajadores*

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Abstract

Introduction. The importance of studying the psychosocial impact of organizations lies in the effects and consequences that they generate in the occupational health of workers. **Aim.** The objective of this work is to propose a model of the psychosocial impact of organizations on the occupational health of workers. **Methodology.** The construction of the model was carried out in three stages: a) conceptual analysis of the psychosocial factors and risks, b) review of the literature on the impact of these factors and risks, and c) construction and proposal of the psychosocial impact model of the organizations in the occupational health of workers. **Results.** The results allowed us to support the model, made up of causes (psychosocial factors, psychosocial risk factors and psychosocial risks) and effects (psychophysiological and behavioral responses, effects on the health of the worker and on organizations), mediated by perception, experience and individual characteristics. **Conclusion.** Psychosocial factors and risks mainly have direct negative effects on the occupational health of workers and on the performance of organizations. **Recommendations.** It is recommended to continue the study of the psychosocial impact of organizations on workers.

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Keywords: psychosocial risk factors; psychosocial factors; occupational health; psychosocial risks; psychosocial impact

Resumen

Introducción. La importancia del estudio del impacto psicosocial de las organizaciones radica en los efectos y consecuencias que generan en la salud ocupacional de los trabajadores. **Objetivo.** El objetivo de este trabajo es proponer un modelo del impacto de tipo psicosocial de las organizaciones en la salud ocupacional de los trabajadores. **Metodología.** La construcción del modelo se efectuó en tres etapas: a) análisis conceptual de los factores y riesgos psicosociales, b) revisión a la literatura del impacto de estos factores y riesgos, y c) construcción y propuesta del modelo de impacto de tipo psicosocial de las organizaciones en la salud ocupacional de los trabajadores. **Resultados.** Los resultados permitieron sustentar el modelo, conformado por causas (factores psicosociales, factores de riesgo psicosocial y riesgos psicosociales) y efectos (respuestas psicofisiológicas y del comportamiento, efectos en la salud del trabajador y en las organizaciones), mediados por la percepción, la experiencia y las características individuales. **Conclusión.** Los factores y riesgos de tipo psicosocial tienen principalmente efectos negativos directos en la salud ocupacional de los trabajadores y en el desempeño de las organizaciones. **Recomendaciones.** Se recomienda continuar el estudio del impacto de tipo psicosocial de las organizaciones en los trabajadores.

Código JEL: D2, D91, L2

Palabras clave: factores de riesgo psicosocial; factores psicosociales; salud ocupacional; riesgos psicosociales; impacto psicosocial

Introduction

Since 1974, WHO member states have been paying attention to psychosocial factors concerning health and human development. In that year, the World Health Assembly requested its Chief executive officer to organize multidisciplinary programs to explore the role of psychosocial factors at work, to document their importance and their effects on workers' health, and to prepare proposals for activities to be undertaken by WHO.

In 1984, the Joint ILO-WHO Committee on Occupational Medicine, at its ninth session in Geneva, recognized that economic development, technical progress, increased productivity, and social stability depend not only on the means of production but also on working and living conditions as well as on the level of health and well-being of workers and their families. This led to the development of a global preventive program that considers physical and chemical risks as well as the various psychosocial factors inherent to the companies that may have a considerable influence on workers' physical and mental well-being (ILO/WHO, 1984). This was how the examination of psychosocial factors at work and their consequences on workers' health began, the methods for their identification were determined, and the means to anticipate, eliminate, or reduce psychosocial factors arising in the workplace were established.

There are, therefore, three important publications that define and point out the effects of psychosocial factors at work:

- Psychosocial factors at work. Recognition and control. Published by the International Labor Organization in 1984.
- Psychosocial factors at work: Nature, incidence, and prevention. Published by the International Labor Organization and the World Health Organization in 1984.
- Psychosocial factors at work and their relation to health. Published by WHO in 1988.

From these contributions and publications, multiple studies and research have been generated in different countries showing the impact and effect of psychosocial factors, psychosocial risk factors, and psychosocial risks on workers, organizations, and society. In addition, theories, measurement instruments, empirical research, and various contributions have been generated in most developed and developing countries.

Nevertheless, in Mexico, it was not until November 13, 2014, when the Federal Regulation of Safety and Health at Work (STPS, 2014) was issued that psychosocial factors at work were recognized for the first time. Specifically, Article 32 establishes Psychosocial Risk Factors, which are defined as factors that can cause anxiety disorders, non-organic sleep-wake cycle disorders, and severe and adaptive stress derived from the nature of the job functions, the type of workday and exposure to severe traumatic events or acts of workplace violence, due to the work performed by the worker (STPS, 2014). Subsequently, in 2018, the STPS issued the official regulation NOM-035-STPS-2018, psychosocial risk factors-identification and prevention (STPS, 2018). This regulation establishes the elements to identify, analyze, and prevent psychosocial risk factors, as well as promote a favorable organizational environment. This regulation establishes the obligations of the employer and workers (STPS, 2018). This regulation will lead occupational health experts to identify psychosocial risk factors and the need to determine how factors derived from the nature of job functions, the type of workday, and exposure to severe traumatic events or acts of workplace violence generate psychosocial risk that impacts workers and organizations.

With these references, the identification, analysis, prevention, and control of psychosocial risk factors are beginning in Mexico, so it was considered opportune to conduct this work to integrate the effects of these factors on workers and organizations.

The importance of studying the psychosocial impact of organizations lies in the fact that psychosocial factors, psychosocial risk factors, and psychosocial risks at work harm workers' health with important consequences for companies. Accordingly, this work aimed to propose a model of the psychosocial impact of organizations on workers' occupational health.

Conceptual definition

The term “psychosocial” semantically comprises two aspects: psychological and social. It refers to social and psychological factors in the work environment. Becker and Weyermann (2006) add the consideration that the prefix “psycho” refers to the psyche and focuses on the inquiry and comprehension of the human experience from the subjectivity of the person, and the term “social” refers to the fact that every individual is immersed in a social environment and refers to the dynamics established between the subject and others with whom they are in a permanent relationship. In other words, the psychosocial is related to the meeting place between the subjective and the collective, without losing sight of the subject’s personal experience and individual characteristics (Becker & Weyermann, 2006; Castaño, 2004).

To determine an organization’s psychosocial impact, it is important to establish the main definitions of psychosocial factors at work, psychosocial risk factors, and psychosocial risks themselves.

- Psychosocial factors at work. These are interactions between work factors, the environment, job satisfaction, and organizational conditions, on the one hand, and on the other, the worker’s abilities, needs, culture, and personal situation outside work, all of which, through perceptions and work experience, can influence health, performance, and job satisfaction (ILO/WHO, 1984). For the ILO (1998), psychosocial factors are classified into work-inherent factors (person-environment fit, workload, workday, environmental design, ergonomic factors, self-esteem and control, work pace, supervision, role clarity, overload), interpersonal factors (sexual harassment, violence at work), organizational factors (total quality management, management style, organizational structure, organizational climate and culture, performance measurement and compensation). The ILO and WHO in 1984 provided the most representative definition of psychosocial factors at work.
- Psychosocial risk factors. These psychosocial and organizational factors provoke maladaptation, tension, and psychophysiological responses. In other words, they are likely to negatively affect the health and well-being of the worker and trigger tension and work stress (Benavides, Gimeno, Benach, Martínez, Jarque, & Berra, 2002; Peiró, 1993). This group of factors includes, for example, work content, work overload and pace, work schedule, control over work, work environment, organizational culture, interpersonal relationships, job role or position, career development, work-family relationship, contractual security, among others (Cox & Griffith, 1995). On the other hand, NOM-035 on psychosocial risk factors at work states that these factors are those that can cause anxiety disorders, non-organic disorders of the sleep-wake cycle, and severe stress and adaptation disorders as a result of the nature of the job functions, the type of workday and exposure to severe traumatic events or acts of workplace

violence against the worker, due to the work performed. Among the psychosocial risk factors noted in this regulation are hazardous and unsafe conditions in the work environment, workloads that exceed the worker's capacity, lack of control over work, working hours longer than those provided for in the Federal Labor Law, shift turnover that includes night shifts and night shifts without recovery and rest periods, interference of the work-family relationship, negative leadership, and negative relationships at work (STPS, 2018).

- Psychosocial risks at work. A psychosocial risk is any fact, event, situation, or state that is a consequence of the organization of work and has a high probability of affecting the worker's physical, social, or mental health (Moreno & Báez, 2010; Moreno-Jiménez, 2014). They are also defined as those situations that are present in a work situation, which are directly related to the organization, the content of the work, and the conduct of the task and have the capacity to affect both the well-being and health (physical, psychological, or social) of the worker and the development of the work (Lasa & Palenzuela, 2012). Psychosocial risks are highly likely to have important consequences for the worker's health. This group of risks include, for example, stress, violence at work, harassment at work, sexual harassment, contractual insecurity, burnout, family-work conflict, emotional labor, etcetera (Moreno & Báez, 2010; Moreno-Jiménez, 2014).

Theoretical models underlying the psychosocial impact of organizations

Multiple models and theories in the literature support the impact and effect that psychosocial factors have on workers and, consequently, on organizations. One of the first models corresponds to the Model of psychosocial factors at work outlined by ILO/WHO (1984), in which psychosocial factors at work consist of interactions between work, its environment, job satisfaction, and the conditions of its organization, on the one hand, and the other hand, the worker's capabilities, needs, culture, and personal situation outside work, all of which, through perceptions and experiences, can influence health and performance and job satisfaction. Psychosocial factors at work as a set of work environment factors are in continuous dynamic interaction. The work environment, tasks, and organizational factors represent working conditions. It should be noted that under this definition, workers' reactions depend on their abilities, needs, expectations, culture, and personal life.

In 1988, the WHO published a book entitled *Psychosocial Factors at Work and Their Relation to Health*, in which the Model of Kagan and Levi (1975) is presented to support the diseases generated by psychosocial factors at work. This model has several components: 1) psychosocial stimulus, 2) psychobiological program, 3) mechanisms, 4) precursors of disease, 5) disease, and 6) interacting

variables. This model has several interacting variables: intrinsic or extrinsic, social, mental, or physical factors, which modify the action of the causal factors in the mechanism, precursor, or disease phase. These factors promote or prevent the process that can lead to the disease. The interactions between the worker and their environment correspond to a non-linear and cybernetic system with continuous feedback. If the disease appears in an individual, it has repercussions on the social process that develops within the social structure in which they live and on the resulting stimuli, on the propensity of the person and the interacting variables.

In Issue 34 on Psychosocial and Organizational Factors of the Encyclopedia of Occupational Health and Safety, the Stress Model of the National Institute for Occupational Safety and Health (NIOSH) of the United States of America is presented to support how work-related psychosocial factors (also called stressors) produce psychological, behavioral, and physical reactions that can influence worker health (Sauter, Murphy, Hurrell, & Levi, 2010). This model also involves individual and contextual factors, known as moderators of stress, that influence the effects of stressors and psychosocial factors on workers' health and well-being.

On the other hand, Peiró (1993) proposes a model that consists of the integration of six factors: environmental variables (stressors and resources), worker characteristics, subjective experience, worker response (coping strategies), results of the experience of stress, and consequences of stress. It is a comprehensive and integrated model that explains stress from its genesis to the final negative outcomes the worker suffers due to stress. This model provides an adequate conceptual framework to conduct an intervention because it considers the study of the causes (stressors), as well as the characteristics of the worker, their response, and the consequences that work stress has on their health (Merín, Cano-Vindel, & Miguel-Tobal, 1995).

In addition, several specific theoretical models of psychosocial risks, such as work stress, consider factors that generate stress in workers and its consequences in organizations. This is the case of the Stress and Coping Model by Lazarus and Folkman (1984), the Resource Conservation Model by Hobfoll (1989), the Effort-Reward Imbalance Model by Siegrist (1996), the Demand-Control-Support Model by Karasek (2012), Bakker and Demerouti's (2013) Job Demands-Resources Model, Salanova, Llorens, Cifre and Martinez's (2007) Resources, Emotions/Experiences and Demands Model, and French, Caplan and Harrison's (1982) Person-Environment Fit Model, among others.

This paper proposes a model of the psychosocial impact of organizations on the occupational health of workers and the organizations themselves based on a literature review. The importance of studying the psychosocial impact of organizations is to lay the foundations for identifying factors and risks and their impacts that should be measured to conduct a psychosocial diagnosis. In addition, the model

enables the prevention and control of the effects caused by psychosocial factors, psychosocial risk factors, and psychosocial risks at work.

Research methodology

For the construction of the model of the psychosocial impact of organizations on the occupational health of workers, the following stages were carried out:

- 1st. Stage. Conceptual analysis of the impact generated by psychosocial factors, psychosocial risk factors, psychosocial risks, and emerging psychosocial risks at work. This analysis enabled the determination of the impact, effect, and risk they cause.
- 2nd. Stage. Review of the literature. A review of the literature was conducted identifying 47 articles from 2018 to 2023 to identify: a) psychophysiological responses of psychosocial factors and psychosocial risk factors at work, b) impact (effect) of psychosocial factors at work and psychosocial risk factors at work, c) impact (effect) of the main psychosocial risk at work (work stress). This review aimed to substantiate the impact of psychosocial factors and risks on worker health and organizations. Three databases of scientific journals were consulted: Ebsco, Redalyc, and Scielo. According to Figure 1, three descriptors were identified as background or causal variables (psychosocial factors, psychosocial risk factors, and psychosocial risks at work), two descriptors as consequent variables or effects (impact on the worker's health and impact on the organization), in addition to the psychophysiological and behavioral responses to stressors or stressful events.
- 3rd. Stage. Proposal of the model of organizations' psychosocial impact on workers' occupational health. The model was constructed considering the causal factors and risks (psychosocial factors, psychosocial risk factors, and psychosocial risks at work) and the effects (psychophysiological and behavioral responses, effects on the health of workers and organizations) mediated by perception, experience, and individual characteristics. This model considered the main psychosocial risk corresponding to work stress (Moreno-Jiménez, 2014).

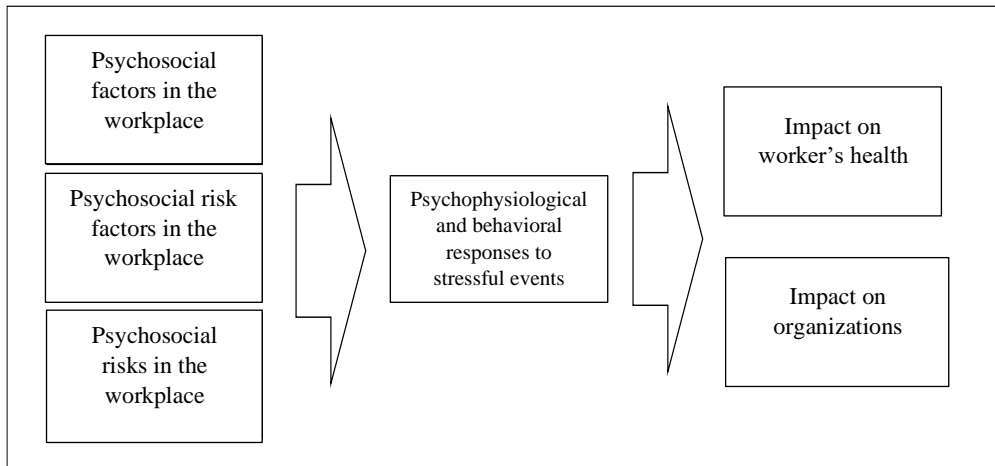


Figure 1. Main descriptors that guided the review of the literature.
Source: created by the author.

Outcomes

Conceptual analysis of the impact of psychosocial factors, psychosocial risk factors, psychosocial risks, and emerging psychosocial risks in the workplace

According to Moreno and Baez (2010), at the first level, psychosocial factors in the workplace generate positive, negative, and adaptive responses; at the second level come the psychosocial risk factors or psychosocial risk factors that generate harmful effects on workers' health and organizational functioning; and at the third level are psychosocial risks that have a high probability of affecting workers' health and business functioning in the medium and long term.

Psychosocial factors and psychosocial risks generate consequences related to worker health (physical health, mental health, substance use, psychosomatic disorders), attitudes towards the company (job satisfaction, involvement and commitment, counterproductive behaviors), effects on working time (staff turnover, presenteeism, sick leave) and economic costs (work accidents, loss of materials, low performance, and low productivity) (Moreno & Báez, 2010).

On the other hand, Cox and Ferguson (1994), as well as Lahtinen, Huuhtanen, and Reijula (1998), state that physical risks, as well as psychosocial and organizational risks, have an important effect on occupational health, and these effects are mediated by the individual's cognitive and psychophysiological processes.

The psychosocial impact generated by organizations can be understood in terms of the effect, results, and consequences caused by these factors and risks on workers and personnel working in any organization, including companies, institutions, government agencies, non-governmental organizations, and any legally constituted association or society.

In order to specify the impact caused by psychosocial factors, psychosocial risk factors, and psychosocial risks at work, Table 1 specifies each of them and the effects they cause mainly on workers. Psychosocial factors at work can influence and affect workers' health, well-being, performance, and satisfaction. On the other hand, psychosocial risk factors are likely to negatively affect workers' health and well-being. Finally, psychosocial risks have a high probability and potential to cause and provoke physical, psychological, and social harm to workers.

Table 1
 Description of the impact of psychosocial factors at work

Type of factors	What are they?	Impact	Risk
Psychosocial factors in the workplace	These are interactions between work factors, the environment, job satisfaction, and organizational conditions, on the one hand, and on the other, the worker's capabilities, needs, culture, and personal situation outside work, all through perceptions and experience in the workplace (ILO/WHO, 1984).	They can influence health, performance, and job satisfaction (ILO/WHO, 1984). They can affect the well-being or health (physical, psychological, or social) of the worker and the development of the work (Martín & Pérez, 1997). They affect work development and workers' health (Gil-Monte, 2012). They can potentially affect the well-being and health of workers (Charria, Sarsosa, and Arenas 2011).	Ability of factors to influence health, performance, and job satisfaction
Psychosocial risk factors	These psychosocial and organizational factors provoke stress and maladaptive and psychophysiological responses (Benavides, Gimeno, Benach, Martínez, Jarque, & Berra, 2002; Peiró, 1993).	These factors are likely to affect the health and well-being of the worker negatively and are triggers of tension and work stress (Benavides, Gimeno, Benach, Martínez, Jarque, & Berra, 2002; Peiró, 1993).	Likelihood of adversely affecting the health and well-being of workers
	These are factors of the nature of the job functions, the type of workday, and exposure to severe	They can lead to anxiety, a non-organic sleep-wake cycle, and severe stress	

Type of factors	What are they?	Impact	Risk
	traumatic events or acts of workplace violence against the worker due to the work carried out (STPS, 2018).	and adjustment disorders (STPS, 2018).	
Psychosocial risks	It is the fact that the event, situation, or state resulting from the organization of work has a high probability of affecting the worker's health (Moreno & Baez, 2010; Moreno-Jimenez, 2014).	They significantly and seriously affect the physical and mental health of the worker (Moreno, 2011; Moreno-Jiménez, 2014).	High probability and potential to affect the worker's health and cause psychological,
	It is the stressor or source of work stress and can potentially cause psychological, physical, or social harm (Gil-Monte, 2012).	They can potentially cause the worker psychological, physical, or social harm (Gil-Monte, 2012).	physical, and social harm
	Potential threats to the worker's health come from disharmony between the worker, the activity, and the immediate working conditions that can materialize in work-related damage (Solórzano, 2014).	Potential threat to worker health (Solórzano, 2014).	

Source: created by the author based on the authors mentioned above.

Psychophysiological and behavioral responses to psychosocial factors and risks at work

The literature identifies multiple studies emphasizing the psychophysiological and behavioral response to stressful events. Nevertheless, the studies identified in the work environment are scarce (Table 2). Nonetheless, it was identified that workers exposed to stress factors and situations present psychophysiological responses, elevated cortisol levels, cognitive exhaustion, high blood pressure, anxiety, and low self-confidence in addition to physiological changes impacting several systems (hypothalamic-pituitary-adrenal, sympathetic adreno-medullary, and immune). A negative effect on work performance and risk-taking, and positive effects causing better stress control, increased motivation, mental ability, and team cohesion are also identified.

Table 2
 Psychophysiological responses to stressful events at work

Authors	Responses
Kind, Eckert, Steinlin, Fegert, and Schmid (2018)	Elevated cortisol levels, symptoms of cognitive exhaustion, increased burden on interpersonal domains
Pulopulos, Hidalgo, Puig-Perez, and Salvador (2019)	Psychophysiological response to acute stress situations Differences in stress response in men and women in blood pressure, heart rate, and alpha-amylase Relation of age in cortisol and basal activity of the sympathetic system
Nowacki, Duesenberg, Deuter, Otte, and Wingenfeld (2019)	Elevated cortisol concentrations Elevated alpha-amylase activity High blood pressure Decrease in risk-taking
Castillo-Rodríguez, López-Aguilar, and Alonso-Arbiol (2021)	Lesser physiological response Increased anxiety Lower self-confidence Stress management, motivation, mental ability, and team cohesion
Razo, Vilcacundo, Garófalo, and Valero (2021)	Physiological changes with an impact on several systems (hypothalamic-pituitary-adrenal, adreno-medullary sympathetic, and immune)

Source: created by the author based on the reported authors.

Impact of psychosocial factors and psychosocial risk factors at work

In 1984, the ILO and WHO recognized psychosocial factors at work and made their effects or consequences explicit, classifying them into physiological and psychological consequences, behavioral reactions, and persistent health problems. In addition, ILO/WHO (1984) points out some examples of vulnerability factors in order to defer or modify the effects of psychosocial factors at work. This group includes predisposing factors or protective factors such as age, personality, and social support.

In 1988, the WHO also recognized that psychosocial factors at work relate to workers' health (Kalimo, El-Batawi, & Cooper, 1988). Indeed, the effect of these factors on workers' health in various countries is recognized, and emphasis is placed on reactions to stress and individual differences as factors of vulnerability to stress. Among these effects are psychosocial health problems of workers, psychophysiological and behavioral responses to stress at work, neurophysiological reactions to stress, metabolic and neurohormonal reactions to stress, mental disorders, and work-related psychosomatic diseases.

Meanwhile, WHO (2008) classified the consequences of psychosocial risk factors into those centered on the worker (physiological, emotional, cognitive, and behavioral reactions to stress) and on the organization or company (e.g., increased absenteeism, staff turnover, reduced performance and

productivity, reduced quality of products and services, workplace accidents, and client complaints, among others).

Similarly, Duran (2010) points out that the consequences of psychosocial risk factors can be classified into personal and organizational factors. At an individual level, there is a negative impact on physical, mental, behavioral, and social health. At the organizational level, a negative impact is evident in decreased productivity, quality, and quantity of products and services, lack of teamwork, increased absenteeism, accidents, client complaints, and conflicts.

The review of the literature enabled the identification of the negative effects of psychosocial factors and psychosocial risk factors at work on workers' health. The main negative effects are principally characterized by the presence of stress, work stress, psychosomatic disorders (musculoskeletal, muscle pain, sleep), depression, anxiety, exhaustion, work accidents and injury rates, burnout, reduced perceived health and reduced mental health, and intention to quit. A favorable finding was the positive effect of psychosocial factors and risks at work on job satisfaction.

Table 3
 Impact of psychosocial factors and psychosocial risk factors at work

Authors	Psychosocial factors and psychosocial risk factors in the workplace	Effects
Firat (2018)	Work-family conflict Family-work conflict Job satisfaction	Teacher stress (+)
Aubé <i>et al.</i> (2019)	Psychosocial and physical factors	Musculoskeletal disorders (+)
Vleeshouwers, Knardahl, and Christensen (2019)	Exposure to 13 psychosocial factors	Increased number of musculoskeletal pain points (+) Sleep disorders (+)
Duchaine <i>et al.</i> (2019)	Psychosocial factors of 3 models: demand-control-support model, effort-reward imbalance model, and organizational justice model	Depression (+)
Kheswa (2019)	Lack of transportation resources, computers, and inadequate emotional support	Work stress (+)
Vaziri, Zakeri, and Meybodi (2020)	Characteristics of labor (importance, identity, independence, feedback, range of skills)	Job satisfaction (+) Work stress (+)

Authors	Psychosocial factors and psychosocial risk factors in the workplace	Effects
Soto-Rubio, Giménez-Espert, and Prado-Gascó (2020)	Psychosocial demand factors: interpersonal conflict, lack of organizational justice, role conflict, workload	Exhaustion (+) Psychosomatic complaints (+) Job satisfaction (+)
Jorquera and Herrera (2020)	Work overload	Work burnout (+) Work stress (+)
Nambiema, Bodin, Stock, Aublet-Cuvelier, Descatha, Evanoff, and Roquelaure (2021)	Biomechanical factors (high physical exertion) Psychosocial factors (low social support)	Musculoskeletal disorders (+)
Kocatepe and Parlak (2021)	Working conditions perceived as unsafe	Occupational accidents (+) Anxiety (+)
Akkoç, Okun, and Türe (2021)	Job-related stressors: Role conflict, workload, and stress	Burnout syndrome (+) Exhaustion (+)
Colin, Wild, Paris, and Boini (2021)	Exposure to physical and psychosocial factors	Injury rate (+)
Karadas and Duran (2022)	Insufficient social support	Work stress (+)
Aydin (2022)	Work stressors and engagement	Work stress (+)
Niedhammer, Derouet-Gérault, and Bertrais (2022)	20 psychosocial factors	Perceived health (-)
Öztürk (2022)	Excessive overload	Intention to leave employment (+)
Aslan, Lee, Yaman, and Aksu (2022)	Career management and succession planning systems	Work stress (-)
Hosseininejad, Moslemi, Mohammadi (2022)	Physical factors and stressors	Mental health (-) Sleep quality (-)

Source: created by the author based on the reported authors.

Impact of psychosocial risks in the workplace; Work stress

This paper reports the effects and impact of a psychosocial risk called work stress. Sauter, Murphy, Hurrell, and Levi (2010) point out different reactions and consequences of work stress as a psychosocial risk at work. These authors point out that the effects of work stress include physiological reactions, effects

on worker behavior and well-being, immune reactions, chronic health effects, gastrointestinal problems, cancer, musculoskeletal disorders, mental disorders, and burnout.

Similarly, the WHO classifies the effects of work stress into two groups: effects on workers and effects on organizations (Leka, Griffiths, & Cox, 2004). The effects on workers include fatigue, distress, decision-making difficulties, less commitment, and difficulty concentrating and relaxing. Effects on organizations include increased absenteeism and staff turnover, accidents, client complaints, reductions in productivity, performance, and dedication to work, and deterioration of the organization’s image. It should be noted that the effects at the individual level will be different for each person depending on their work experience, perception, and individual characteristics.

The results of the review of the literature indicate that work stress harms the occupational health of workers characterized by an increase in arterial hypertension, reduced immune response, hormonal alteration, reduction or deterioration in health, perception of helplessness, loss of control, low self-efficacy, work-family conflict, exhaustion, depression, psychological maladjustment, and psychological symptoms (emotional disturbances, pseudo neurological disorders), in addition to sleep disorders, health problems (cardiopulmonary, gastrointestinal, musculoskeletal disorders), pain disorders, hand sweating, poor mental health (stress, anxiety, and depression), and negative effect on well-being and coping methods.

Work stress also has a negative effect, causing an increase in staff turnover intention, low job retention, lower retirement age, reduced work capacity, reduced work performance, low work motivation, low productivity, low work efficiency, and even suicidal ideation. The only positive effects identified were on job performance, i.e., work stress positively impacts job performance.

Table 4
Impact of psychosocial risks on workers and organizations

Authors	Psychosocial risks	Effects
Uriesi (2019)	Work stress and trust in managers	Intention of staff turnover (+)
Massamba, Talbot, Milot, Pearce, Trudel, and Brisson (2019)	Tension at the workplace	Arterial hypertension (+)
Mäcken (2019)	Work stress	Health (-) Retirement age (-)
Niño-Higuera et al. (2019)	Perceived stress	High perception of helplessness (+) Loss of control (-) Low perception of self-efficacy or control of situations (-)

Authors	Psychosocial risks	Effects
Prada-Ospina (2019)	Burnout and work stress	Motivation (-)
Eun-Sook and Hee-Sun (2019)	Work stress	Work-family conflict (+) Exhaustion (+) Depression (+)
Yang, Liu, Lei, Deng, and Xu (2019)	Stress	Working capacity (-)
Eunjeung, Ji, Suhjung, and Soo (2019)	Stress. Cognitive flexibility	Psychological maladjustment (+) Psychological symptoms (-)
Kerdpitak and Jermsttiparsert, (2020)	Work stress and work-family imbalance	Intention of staff turnover (+)
Jaganjac, Gavrić, and Obhodaš (2020)	Work stress and job satisfaction	Low job retention (-)
Basurto, Rodriguez, Giniebra, and Loor (2020)	Work stress	Irritability and restlessness (mood disorder) (+) Emotional disturbances (+) Pseudoneurological disorders (+) Painful symptoms (headaches, neck, back) (+) Difficulty in remaining seated (+) Hand sweating (+) Sleep disorders (+) Cardiopulmonary problems (+) Gastrointestinal symptoms (+)
Abbas and Nasir (2020-2021)	Work stress, work overload, and work-related family conflicts Integration and job satisfaction	Job performance (-) Job performance (+)
Rani, Kumar, and Singh (2021)	Work stress	Low productivity (-)
Son and Lee (2021)	Shift work Work stress Poor sleep quality	Suicidal ideation (+)
Ibrahim, Gadallah, Kandil, and Gamal El-Din (2021)	Work stress	States of poor mental health: stress, anxiety, and depression (+)
Cahill, Cullen, Anwer, Wilson, and Gaynor (2021)	Work stress	Negative impacts on well-being, mental health, and coping methods (-)

Authors	Psychosocial risks	Effects
Eldin, Sabry, Abdelgwad, and Ramadan (2021)	Work stress	Immune response (-) Hormone alteration Expression of micro-RNA (miRNA)
Ching-Lan, Wei-Ping, Wen-Yu, Po-Chang, and Hsien-wen (2022)	Perceived work stress	Musculoskeletal disorders (+)
Kumari (2022)	Work stress	Work-family conflict (+)
Yulianti, Perizade, and Zunaidah (2022)	Work stress Work environment	Job performance (+)
Yang, Huang, Lin, Tseng, and Kuo (2022)	Effort-reward imbalance	Musculoskeletal disorders of upper extremities: elbow, shoulder, upper back, wrist (+)
Raza and Ahsan (2022)	Work stress	Work efficiency (-)
Ismail, Abdelhamid, Khalil, and Abdelsalam (2023)	Technostress (techno-complexity, techno-insecurity, techno-uncertainty) Role conflict Work stress	Productivity (-)
Liao, Wang, and Wang (2023)	Work stress Family-work conflict Meaning of life	Well-being (-)

Source: created by the author based on the reported authors.

Proposal of an integrated model of the psychosocial impact of organizations on the occupational health of workers

As an integrated approach, Figure 2 presents a model of the psychosocial impact of organizations on workers' health, considering the impact of psychosocial factors at work, psychosocial risk factors, and psychosocial risks on workers and organizations.

The results of the review of the literature supported the model of the psychosocial impact of organizations on the occupational health of workers, comprised of:

- The causes
 - Psychosocial factors in the workplace. These positive and negative factors can influence health, performance, and job satisfaction (ILO/WHO, 1984) and can become psychosocial risk factors.

- Psychosocial risk factors. These factors will likely negatively affect the worker's physical, psychological, and social health. They can also generate stress (Moreno-Jiménez, 2014) and damage workers' health.
- Psychosocial risks and emerging psychosocial risks. These risks have the potential and high probability of affecting the worker's health and causing physical, psychological, and social harm (Moreno-Jiménez, 2014).
- The effects
 - Psychophysiological, behavioral, emotional, and cognitive responses.
 - Effects on the worker's health. The worker's physical, mental, and social health is affected or damaged. Exhaustion, fatigue, depression, anxiety, irritability. In addition to psychosomatic cardiovascular, gastrointestinal, musculoskeletal, pain, and psychosexual disorders, anxiety, and depression.
 - Effects on organizations. The effects on organizations can range from absenteeism, staff turnover or turnover intention, reduced performance, productivity, and work efficiency to increased accidents and work errors, and reduced commitment, motivation, and job satisfaction.
- Mediators
 - The effects of psychosocial factors and risks, as well as psychophysiological and behavioral responses, are mediated by the worker's perception, experience, and individual characteristics (sociodemographic, cultural, social, etcetera).

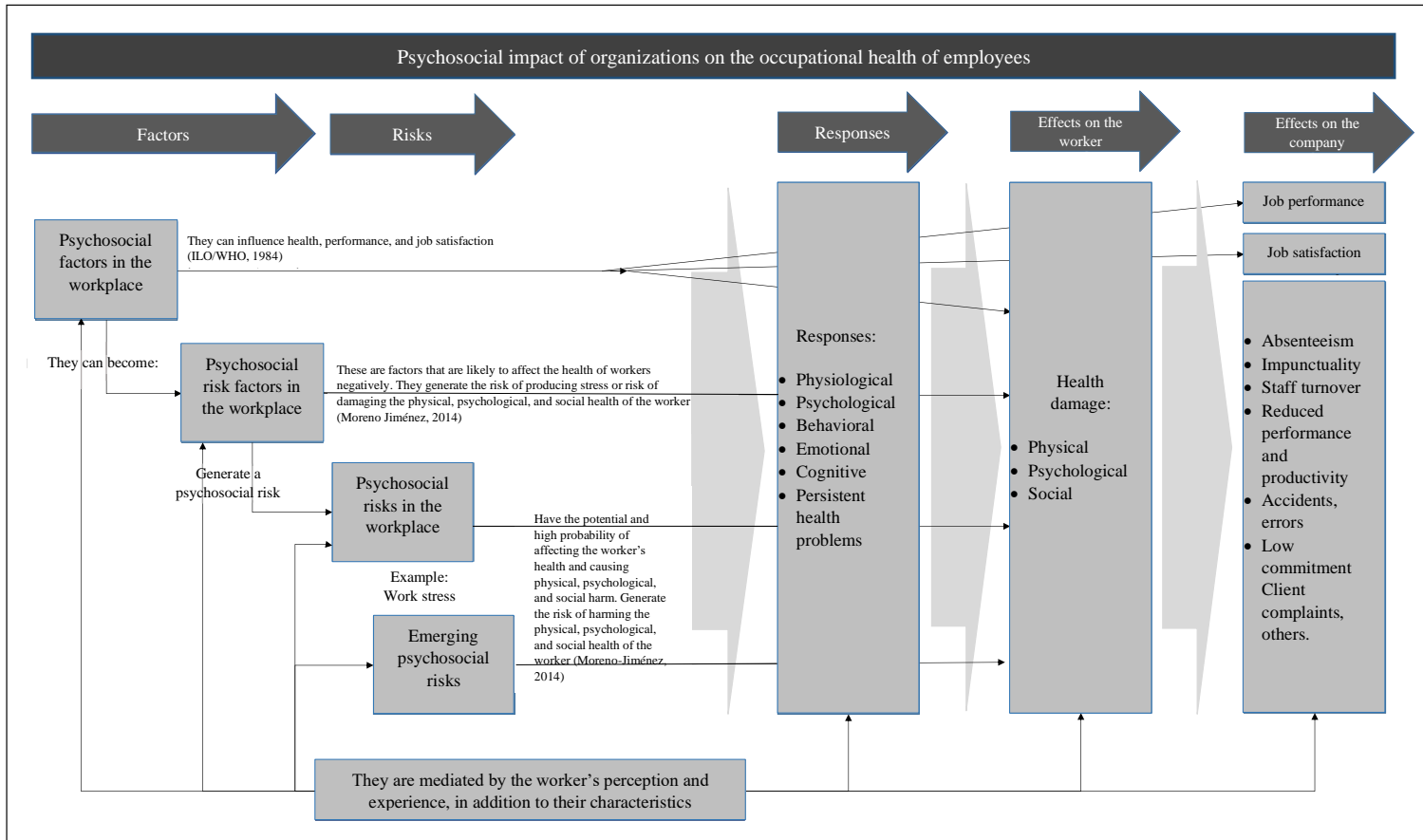


Figure 2. Model of the psychosocial impact of organizations on the occupational health of workers.
Source: created by the author.

Discussion

This research proposes a model of organizations' psychosocial impact, mainly on workers' health. Nevertheless, the review of the literature also indicates that there are important effects on organizations, such as negative effects on productivity, work performance, quality of work performed, and staff turnover, among others.

The proposed model aims to expand the variables of the ILO/WHO model (1984), which supports the systemic and dynamic interaction of psychosocial factors at work and their effect on only three variables (job satisfaction, job performance, and worker health). Therefore, the model proposed in this article aims to expand both the causal factors (psychosocial factors, psychosocial risk factors, and psychosocial risks) and the effects (on the worker, on the organization), as well as the mediating variables that can influence the magnitude of the response and the effects on the worker.

Another important model to note is that of Kagan and Levi (1975), which supports the worker's illness due to psychosocial factors at work. This model explains the effects of psychosocial stimuli and the response through a psychobiological program, and the mechanisms used to cope with the stressors that give rise to the precursors of the disease. Nevertheless, the proposed model aims to encompass both psychosocial factors and risks and their effects on the psychophysiological response, the worker's health, and the organization.

Similarly, the model proposed by Peiró (1993) integrates environmental variables, the characteristics of the worker, the subjective experience, the worker's response, and the results and consequences of the experience of stress. This model considers individual characteristics, the study of psychosocial causes, and health effects. Comparatively, the model proposed in this article aims to be comprehensive with a broader approach than that proposed by Peiró (1993) by considering psychosocial factors and risks as causal variables and considering psychophysiological and behavioral responses, as well as the effects on the worker and organizations. Nonetheless, broader models should be developed in the future, considering more psychosocial risks at work, such as harassment at work, violence at work, work-family imbalance, and emotional work, among others.

Conclusions

This work proposed a model of organizations' psychosocial impact on workers' occupational health. To this end, analyzing organizations' psychosocial impact, particularly on workers' occupational health, was necessary. Four relevant terms and their effects were considered to determine this impact: psychosocial factors, psychosocial risk factors, psychosocial risks, and emerging psychosocial risks at work.

This paper concludes that psychosocial factors and risks have negative effects on the occupational health of workers and their work performance, in addition to having negative effects on organizations, their operations, and results. Therefore, it is necessary to have an explanatory model of the psychosocial impact that organizations have on workers so that when conducting the psychosocial diagnosis, not only the psychosocial risk factors at work are measured, but also their effects (on the worker and the organization), the mediating and protective factors, and the individual characteristics of the worker. Similarly, to conduct a psychosocial intervention, it is necessary to have a theoretical model that supports the strategies, interventions, and measures carried out to anticipate the negative effects caused by psychosocial factors and risks and to attend to workers who have already suffered some damage to their health. Occupational health professionals must have theoretical frameworks and models to support their psychosocial and organizational interventions in companies, organizations, and institutions.

In recent years, there has been an increase in the study and research of psychosocial factors and risks due to their effects on workers' health. For instance, they generate psychosomatic disorders (musculoskeletal, sleep disorders, gastrointestinal, cardiovascular, anxiety, and depression, among others), work stress, absenteeism, increase in work accidents, and conflicts in the work-family relationship, and affect mental health, among others (Gómez & Llanos, 2014). Therefore, it is important to integrate these effects into a model that accounts for the psychosocial impact of organizations in different professions, occupations, and jobs according to the factors and risks to which workers are exposed (e.g., doctors, drivers, teachers, assistants, salespeople). It will also be relevant to study the psychosocial impact caused by organizations in different sectors and industries, such as the health sector, the education sector, the service sector, the government sector, the primary sector, manufacturing, and others.

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